

Kansas Department of Agriculture

Division
of
Food Safety and Lodging
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INTRODUCTION

The food service industry has changed significantly over the past few years and that change comes with challenges. Today's informed consumer spends more money dining outside the home than ever before. With this emphasis on dining out, the food service industry is under more pressure to cater to the public's demand for a greater variety of high-quality food that has been prepared and cooked safely.

Preparing high-quality, safe food begins with well-trained and knowledgeable food service workers. This handbook is designed to help you focus on those items that are critical to safely preparing, cooking, holding and storing food. It clearly and concisely identifies and discusses the basics that will help prevent foodborne illnesses.

Food safety and sanitation is not a part-time job. It is the daily responsibility of those who prepare and cook food. It is imperative that a cooperative partnership between industry and health officials be maintained to support the common goal of preventing foodborne illnesses.

Together, we must Focus on Food Safety!

Seminars in food safety are available.

If you have questions, or if you need more information, please call us (785) 296-5600, email us at KSAG@kda.ks.gov, or visit us at www.ksda.gov

These Fact Sheets are Available on Request

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IDENTIFYING COMMON FOODBORNE ILLNESSES

IDENTIFYING COMMON FOODBOKNE ILLNESSES						
Causative Pathogen	Incubatio n Time	Length of Illness	Common Symptoms	Foods Involved/Sources	Prevention	
Bacillus Cerus	1-16 hours	6-24 hours	nausea, vomiting cramping, diarrhea	rice and rice dishes, vegetables, sauces	Cook to proper temp. Reheat quickly. Cool foods rapidly.	
Campylobacter	2-5 days	1-4 days	cramping, fever, diarrhea, nausea, headache, vomiting	unpasteurized dairy, poultry and meats, infected food handler	Thoroughly cook all foods. Use only pasteurized dairy products. Proper hand washing.	
Clostridium perfringens	8-24 hours	24-36 hours	abdominal cramping, diarrhea, nausea	meats, poultry, gravy, beans, stews, foods cooked slowly	Cook and reheat foods to proper temp. Cook in small batches. Cool foods rapidly.	
Shiga Toxin-Producing E. coli	12-72 hours	1-4 days	diarrhea-often bloody, severe cramping, nausea, vomiting, fever	raw and undercooked ground meats (esp. ground beef)	Thoroughly cook ground meats. Avoid cross-contamination.	
Hepatitis A	10-50 days	1-2 weeks; Severe cases may last several months	mild or no symptoms, then sudden onset of fever, general discomfort, fatigue, headache, nausea, loss of appetite, vomiting, abdominal pain, and jaundice after several days	water, ice, shellfish, salads, cold cuts, sandwiches, fruits, fruit juices, milk, milk products, vegetables, any food that will not receive a further heat treatment	Obtain shellfish from approved sources. Prevent cross-contamination from hands. Ensure food handlers practice good hand washing and no bare hand contact.	
Listeria Monocytogenes	1 day-3 weeks	Indefinite, depends on treatment, severe	nausea, vomiting, fever, chills, headache, meningitis, miscarriages	unpasteurized dairy, cheese, vegetables, seafood, poultry	Use only pasteurized dairy products. Cook properly. Hold refrigerated for limited time.	
Norwalk-like	24-48 hours Virus	1-2 days	cramping, diarrhea, nausea, vomiting, headache, fever	raw fruit, raw vegetables, prepared salads, raw shellfish	Thoroughly cook foods. Wash hands. Use certified shellfish. No bare hand contact.	
(Staph) Staphylococcus aureus	1-7 hours	1-2 days	onset abrupt and often severe, nausea, vomiting, cramping, sometimes diarrhea	ready-to-eat foods, i.e. sandwiches, salads, ham and other meats, potato salads, custards, warmed-over foods; often from infected foodhandlers-cuts, throat, nose and acne	Practice good hand washing and hygiene. Avoid contamination. Reduce bare hand contact with foods. Exclude foodhandlers with cuts and lesions. Rapidly cool foods.	
Salmonella	6-72 hours	1-3 days	abdominal cramping, headache, nausea, diarrhea, fever, sometimes vomiting	undercooked or raw meats, poultry and shell eggs, poultry and egg salads, egg custards and sauces, protein foods, pets and infected handlers	Avoid cross- contamination. Cool and refrigerate foods immediately. Cook meats/poultry thoroughly. Practice good hand washing.	
Shigella	12 hours-7 days	4-7 days, depends on treatment	diarrhea-often bloody, cramping, fever, nausea, sometimes vomiting	ready-to-eat foods associated with bare hand contact (salads, sandwiches, etc.) Source: humans (feces) and flies	Practice good hand washing after using toilet. Use approved water and foods. Control flies. No bare hand contact.	

FOOD SAFETY RISK FACTORS

Risk factors are those practices or procedures that pose the greatest potential for foodborne illness. Risk factors are determined by the Centers for Disease Control and Prevention and the U.S. Food and Drug Administration

FOOD SOURCE:

- Food from unapproved or uninspected source
- · Unsound condition of food, adulterated food
- Shellfish records not maintained properly

INADEQUATE COOKING:

- Improper cooking temperatures
- Improper reheating temperatures



POOR PERSONAL HYGIENE:

- Lack of appropriate hand washing
- Bare-hand contact with ready-to-eat foods
- III food workers
- Employees eating, drinking or using tobacco outside of designated areas
- Inadequate hand sink
- · Lack of soap or paper towels

ENUIRONMENTAL CONTAMINATION:

- Improperly storing, labeling, or using chemicals
- Presence of insects or rodents
- Lack of potable water
- Improper sewage disposal



IMPROPER HOLDING:

- Unsafe cooking
- · Lack of date marking
- Improper cold/hot holding temperatures

CONTAMINATION:

- Raw meats not separated from ready-to-eat foods
- Species not separated
- Equipment not properly cleaned and sanitized



BE ON THE LOOKOUT FOR FBI (FOODBORNE ILLNESS)

Is "Looking Clean" Enough to Prevent Foodborne Illness?

FBI Statistics:

- 76 million cases of FBI a year in the United States
- 325,000 hospitalizations a year in the United States caused by FBI
- 5,200 deaths a year in the United States caused by FBI
- \$7.7 \$23 billion annual cost
- \$77,000 average cost per incident

FBI Agents:

- Biological hazards: bacteria, viruses, parasites, yeast, molds
- Physical hazards: glass, toothpicks, fingernails, jewelry
- Chemical hazards: cleaners and sanitizers, pesticides, medications
- Naturally occurring chemical hazards: fish toxins, plant toxins

FBI Sources:

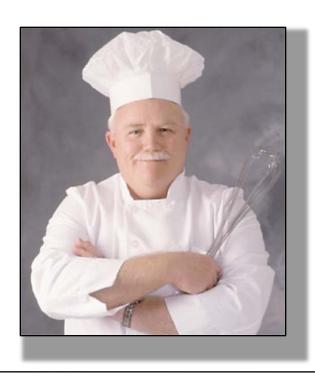
- Humans/foodworkers: contaminated hands, illness
- Foods: contaminated food, time and temperature abuse

FBI Symptoms:

- Common symptoms (onset 12-36 hours): diarrhea, cramping, nausea, vomiting, low-grade fever, body aches
- Rare symptoms: system shutdown, coma, death

Look Out for Foodborne Illness

ILL FOODWORKERS



Restriction

Symptoms:

- Diarrhea
- Vomiting
- Fever
- Jaundice
- Sore throat w/fever
- Infected wound (i.e. cut, lesion or boil)
- Contact with "Confirmed Big 5"

Exclusion

Confirmed Big 5:

- Salmonella Typhi
- Shigella
- Shiga Toxin-Producing E coli
- Hepatitis A
- Norovirus



POTENTIALLY HAZARDOUS FOODS

What are potentially hazardous foods?

A potentially hazardous food is any food or food ingredient (natural or synthetic) capable of supporting rapid growth of microorganisms.



MEAT . DAIRY

Cooked or raw animal (protein) products, such as meats, poultry, dairy, milk, cheese, fish and seafood

STARCH

Heat-treated vegetables and starches, such as cooked rice, beans, potatoes and pasta



SPROUTS • MELONS • RAW CUT TOMATOES tofu, raw seed sprouts, cut melons, cut tomatoes, garlic in oil, raw cut tomatoes, etc.

IS THERE A MICROBE IN YOUR SOUP?

Necessary Conditions for Microbial Growth



Time and Temperature Principal:

- Holding time and temperature is critical
- Temperature <u>DANGER ZONE</u> is from 41°F to 135°F, the range in which rapid growth occurs
- Potentially hazardous foods should not be exposed to the danger zone for more than four hours total, including time spent in preparation, cooling and reheating

MONITORING POTENTIALLY HAZARDOUS FOODS' TEMPERATURES

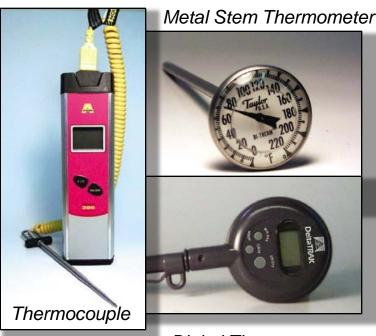
Use and Care of Temperature-Taking Devices

Cleaning:

- · Use a clean, sanitized thermometer
- Single-use alcohol wipe or other approved sanitizer may be used

Taking Temperatures:

- Use a metal stem thermometer, digital thermometer, or thermocouple unit
 - Place the probe in the center or thickest part of the food, between the fold of the flexible packaged food or between packages of food; do not puncture the packaging
 - Allow time for the thermometer to register and record the temperature



Digital Thermometer

Calibrating Metal Stem Thermometers:

- Calibrate thermometers frequently
- Insert sensing area into a cup of ice slush
- Allow indicator to stabilize
- Adjust calibration nut to 32°F while in ice
- Digital thermometer and thermocouple units can be checked for accuracy using this method



Ice Slush Calibration

OBSERUE GOOD HYGIENE



Does Mr. Yucky work in your kitchen?

- Wash hands only in the hand sink-- not in the dishwashing, food preparation or mop sinks
- Ill employees can cause FBI. Norovirus and other highly pathogenic organisms can be easily spread by ill food handlers person-to-person (via the fecal-oral route) or through contaminated airborne droplets, food, water and environmental surfaces. Enforce sick leave policy or reassign duties.
- Eat, drink or use any form of tobacco only in designated areas away from food production
- Do not use a common cloth towel or apron for hand wiping
- No bare-hand contact with ready-to-eat food!
- Wear nails short, clean and unpolished
- Restrict rings to plain bands
- Cover open cuts and burns with finger cots, bandages, or single-use gloves
- Follow single-use glove guidelines



FOOD SAFETY IS IN YOUR HANDS



Handwashing is Important in Preventing FBI

Food Workers and Management

- Wash hands FREQUENTLY and EFFECTIVELY
 20 second friction wash; adequate soap; warm water; use paper towel to dry
- Keep hand sinks accessible AT ALL TIMES
- Wash hands at APPROPRIATE TIMES

Wash Hands After:

Cleaning or



Handling raw food



Using a tissue



Going to the restroom



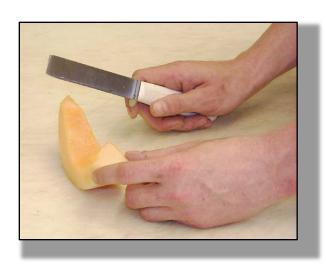
NO BARE-HAND CONTACT

Bare-hand contact with ready-to-eat food is prohibited. When handling ready-to-eat foods, food service workers may use:

- Deli tissue
- Spatulas
- Tongs
- Forks
- Dispensing equipment
- Single-use gloves









Single-Use Glove Guidelines

- Gloves do not replace the need for good hand washing practices
- Wash hands before putting gloves on
- Put gloves on only when you are ready to handle ready-to-eat food
- Use gloves for only one task, such as ready-to-eat foods, then discard
- If you are interrupted during food preparation, remove gloves
- Use clean gloves when you resume food preparation
- Dispose of gloves as soon as you remove them
- Single-use gloves should not be used around heat or hot fats
- Gloves are susceptible to contamination, so discard when soiled or damaged
- Fabric or reusable gloves may not be used with ready-to-eat food
- Avoid single-use gloves made of natural rubber latex

CROSS-CONTAMINATION Avoid the Risk

No bare-hand contact with ready-to-eat food or ice

Use proper utensils or single-use gloves

Practice good handwashing and hygiene

Store raw meat, raw poultry and raw shell eggs <u>below</u> cooked or ready-to-eat foods in the cooler

Clean and sanitize all utensils and surfaces that touch food:

- after each use
- when changing product
- between meat species
- frequently when preparing large amounts
- between raw meats and cooked or ready-to-eat foods

Incorrect

Correct





CROSS-CONTAMINATION Avoid the Risk

Storing food properly in your walk-in cooler will prevent cross-contamination that can lead to foodborne illness. Store foods that require the highest cooking temperature on the lowest shelf.

Cooked and ready-to-eat food





Raw whole fish and eggs—minimum internal cooking temperature 145°F



Raw whole meat—minimum internal cooking temperature 145°F



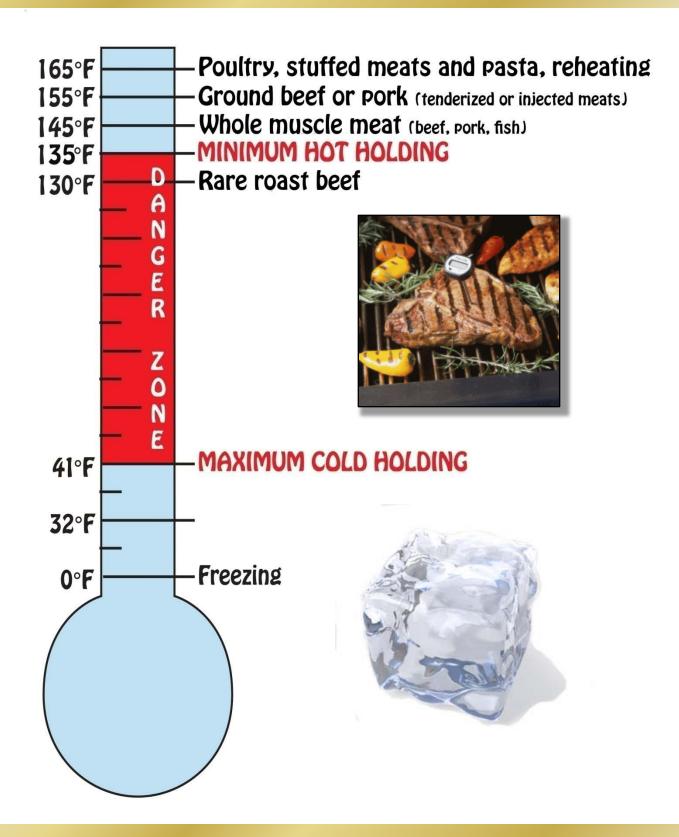
Raw ground meat—minimum internal cooking temperature 155°F



Raw poultry—minimum internal cooking temperature 165°F



FOOD PREPARATION CRITICAL TEMPERATURE



CONSUMER ADVISORY

Each establishment serving raw or undercooked foods needs an advisory to inform consumers of the significantly increased health risks associated with consuming raw or undercooked foods, which include:

- Hamburgers
- Fish
- Pork
- Egg

- Lamb
- Poultry
- Shellfish
- Milk (raw or unpasteurized)

The advisory must include a **DISCLOSURE** and a **REMINDER**.

DISCLOSURE must include:

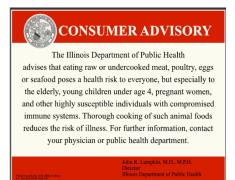
- A description of the animalderived FOODS, such as "oysters on the half shell (raw oysters)," "raw-EGG Caesar salad," and "hamburgers (can be cooked to order)"; or
- Identification of the animalderived FOODS by asterisking them to a footnote that states that the items are served raw or undercooked, or contain (or may contain) raw or undercooked ingredients.

<u>REMINDER</u> must include asterisking the animal-derived FOODS requiring DISCLOSURE to a footnote that states:

- Regarding the safety of these items, written information is available upon request;
- Consuming raw or undercooked MEATS, POULTRY, seafood, shellfish, or EGGS may increase your RISK of foodborne illness; or
- 3. Consuming raw or undercooked MEATS, POULTRY, seafood, shellfish, or EGGS may increase your RISK of foodborne illness, especially if you have certain medical conditions.

CONSUMER ADVISORY

What should a consumer advisory look like?



Wall Plaque

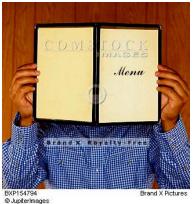


Table Tent



Deli Case Advisory

Menu



Brochures



4 WAYS TO THAW FOOD SAFELY



In a cooler or refrigerator at 41°F or less



In cold (70°F) running water for two hours or less



During the cooking process, continuous cooking with no interruption

By microwaving as the first step in a continuous cooking process



MAINTAIN A SAFE FOOD BAR

Hold all potentially hazardous food at proper temperatures

Hot foods 135°F or above Cold foods 41°F or below

- Take food temperatures every 2-3 hours.
 If food is in the temperature danger zone, take immediate corrective action (REHEAT, QUICK CHILL or DISCARD)
 - Stir foods frequently to distribute temperature.
 Do not add fresh food to old.
 "First In, First Out"
- Trained food employees must monitor self-service food bars
 - Require customers to use clean plates and bowls for return trips to the food bar
 - Post signs
- Protect food from contamination
 - Provide proper serving utensils and sneeze guards



Hot Holding



Cold Holding

SAFELY HOLD HOT and COLD FOODS

Cold Foods Must be Maintained at an Internal Temperature of 41°F or Below

- Date mark foods appropriately
- Cover foods after completely cooled
- Cover foods to maintain cold holding temperature





Hot Foods Must be Maintained at an Internal Temperature of 135°F or Higher

- Use proper equipment for hot holding
- Stir frequently to distribute the temperature
- Covered foods maintain temperature longer

DATE MARKING

Food Must Be Date Marked If It Is:

- Prepared on-site and refrigerated, or commercially processed after the original container is opened
- Potentially hazardous
- Ready-to-eat
- Held for more than 24 hours



Mark With the Date To Be Consumed By or Discarded:

Food can be held for 7 days in adequate refrigeration (41 F or less).
 Day of preparation or day commercially processed food is opened counts as "day one."

If Potentially Hazardous, Ready-To-Eat Food is Frozen:

 Mark that it is to be consumed within 24 hours of removal from freezer.

Or

 When food is removed from the freezer, mark with a "consume by" date that is seven days minus the length of time food was refrigerated before being frozen.

When in Doubt, Throw it Out

COOL FOODS QUICKLY and SAFELY

Two-Stage Cooling is Required

Cooked potentially hazardous foods need to move quickly through the temperature danger zone to limit microbial growth:

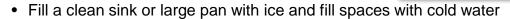
- Stage 1: 135°F 70°F in 2 hours
- Stage 2: 70°F 41°F in next 4 hours
- Or within 4 hours, if food is prepared using ingredients normally stored at room temperature

Cooling Methods

Shallow metal pans - 2" to 4" deep

- · Leave pan partially uncovered
- Refrigerate immediately
- DO NOT stack hot pans; allow for air flow

Ice bath - must use ice and water







- Immerse product pan to depth of product in sink or larger pan until it is level with ice
- Agitate/stir every 10 minutes using an ice paddle or other equipment
- · Drain water and replenish ice as it melts
- Use a clean thermometer to monitor the temperature of the food
- After the food has cooled to 41°F, refrigerate it immediately

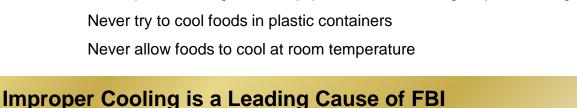
Small portions - reduce the mass/volume

- Divide food into smaller pans
- Separate food into smaller or thinner portions (2" depth for thick foods; 4" for thick liquids)
- Cut or slice portions of meat no larger than 4 inches or 4 pounds

Hints:

Add ice directly to the product as an ingredient

Use rapid chill refrigeration equipment that encourages quick cooling



REHEAT FOODS QUICKLY and SAFELY

Key Elements:

- Reheat previously cooled foods to an internal temperature of 165°F or above
- Rapid reheating is required (2 hours or less)
- Stir foods frequently to distribute the heat
- Measure the internal temperature with a thermometer
- After reaching 165°F, the food must be held hot at 135°F or above



Reheating Methods:

- Direct heat (stove top) is best... may also use steam cookers, ovens and microwave if reheating achieves 165°F within 2 hours
- Reheating in steam tables and crock pots is unsafe and discouraged

Do Not Mix New/Fresh Food With Leftover Items

CLEANING and SANITIZING

Manual Warewashing Steps:

1. Wash:

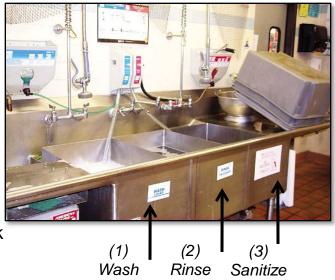
- Clean and sanitize sinks and drain boards
- Pre-soak/pre-rinse all eating utensils and equipment
- Use hot soapy water

2. Rinse:

Use clean hot water

3. Sanitize:

- Use 50-200 ppm chlorine; mix with cool water or
- 200 ppm quaternary ammonia; mix with 75°F water
- Immersion time is 7 seconds
- · Air dry utensils and equipment
- Use appropriate test strips to check concentration



4. Air Dry

Mechanical Dishmachines: (Pre-rinse before loading any machine)

HIGH TEMPERATURE:

1. Wash Temperature:

- Single-tank, stationary rack, dual temperature machine... 150°F
- Single-tank, conveyor machine... 160°F

2. Hot Water Sanitization:

- 180°F at manifold
- 160°F at plate level

LOW TEMPERATURE:

- 1. Chemical sanitization required
- Water temperatures according to manufacturer
- 3. Chemicals must be auto-dispensed into final rinse water; check daily
- 4. Must have a visual or audible low sanitizer indicator

A SAFE and CLEAN FACILITY

Insect and Rodent Control

(cockroaches, flies, mice, rats, etc.)

Insects and rodents carry disease and can contaminate food and foodcontact surfaces. Take steps to minimize their presence



- Protect outer openings by keeping outer doors closed, repair screens, maintain tight-fitting doors and openings, use air curtains
- Eliminate harborage conditions
- Exterminate regularly

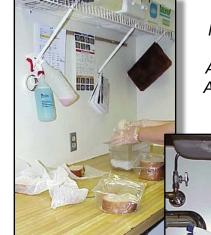
TOXIC MATERIALS

These Items Can Be Poisonous or Toxic If Ingested

- Detergents
- Sanitizers
- Polishes and cleaners
- Insecticides
- Rodenticides
- First aid supplies and personal medication

Storing, Labeling and Using

- Store separately from foods and food-contact surfaces
- Never store above foods or food-contact surfaces
- Label all toxins
- Use only approved chemical in food areas



Incorrect

NEVER store chemicals ABOVE sinks. ALWAYS store BELOW.

Correct

CORRECTIVE ACTIONS

Risk Factor	Corrective Action
Approved source/sound condition • Food from unapproved source/unsound condition	Discard/reject/return
Hand washing • Food employee observed not washing hands at appropriate time	Employee should be instructed when and where to wash hands
Cold holding • Potentially hazardous food held above 41°F MORE than 4 hours • Potentially hazardous food held above 41°F LESS than 4 hours	Discard Use immediately or cool rapidly
Cooking • Potentially hazardous food is undercooked	Continue cooking to proper temperature
 Hot holding Potentially hazardous food held below 135°F MORE than 4 hours Potentially hazardous food held below 135°F LESS than 4 hours 	Poiscard Rapidly reheat to 165°F in LESS than 2 hours or discard
Two-stage cooling process • Potentially hazardous food cooled from 135°F to 70°F in MORE than 2 hours • Potentially hazardous food cooled from 70°F to 41°F in MORE than 4 hours	 Use alternate cooling method Use alternate cooling method or discard. Discard if total cooling time is more than 6 hours
Reheating • Potentially hazardous food is improperly reheated	Use direct reheating method to achieve 165°F immediately or discard

Food Safety is YOUR Responsibility

WHEN TO CALL

Call the Kansas Department of Agriculture Division of Food Safety and Lodging

- Prior to opening food service operations
- For plan review prior to construction or remodeling
- Report change of ownership
- For licensing or inspection inquiry
- To report natural disasters involving food
- To report power outages of 2 hours or more
- To report transportation accident involving food
- To report food service establishment complaint
- To report foodborne illness outbreak
- To request an educational seminar

WHO TO CALL

Kansas Department of Agriculture

Division of Food Safety and Lodging 109 SW 9TH Street, 3rd Floor Topeka, KS 66612

> Telephone: (785) 296-5600 Fax: (785) 296-6522

www.ksda.gov

HELPFUL WEBSITES

Kansas Department of Agriculture:

Division of Food Safety and Lodging www.ksda.gov/food_safety/					
Focus on Food Safety www.ksda.gov					
Restaurant Inspection Searchwww.ksda.gov/food_safety/content/326/cid/1522					
"Did You Wash 'Em" www.kdheks.gov/wash_em/index.html					
Food and Drug Administration www.fda.gov					
United States Department of Agriculture www.usda.gov					
Centers for Disease Control and Prevention www.cdc.gov					
National Restaurant Associationwww.edfound.org					
Kansas Restaurant and Hospitality Association www.krha.org					

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